WHAT IS CLAIMED IS:

CLAIMS

1. A system operating on a reference frequency, the system comprising a plurality of at least three nodes wherein each node hands off a message received from another node to a subsequent node, each of the nodes comprising:

a transceiver receiving a message on the reference frequency from another node and transmitting the received message on the reference frequency to a subsequent node; and

a controller controlling operation of the transceiver to receive the message transmitted by another node and to transmit the received message to a subsequent node.

2. The system of claim 1 wherein each of the transceivers receiving the message transmits on the reference frequency an acknowledgment that the message has been received and wherein the transceiver transmitting the message receives on the reference frequency the acknowledgment.

3. The system of claim 2 wherein the acknowledgment is an explicit acknowledgment such that each of the transceivers receiving the message transmits on the reference frequency an explicit acknowledgment signal to the transmitter transmitting the message.

4. The system of claim 3 wherein the transceiver receiving the message transmits the explicit acknowledgment signal after receiving the message at least twice.

5. The system of claim 2 wherein the acknowledgment is an implicit acknowledgment such that each of the transceivers receiving the message retransmits on the reference frequency the message to another transceiver which re-transmitted message is received by the transceiver originally transmitting the message.

6. The system of claim 2 wherein each node comprises one or more of the following:

an originating node for originating the message,

an intermediate node for handing off the message from a another node from which the message is received to a subsequent node other than the node from which the message was received, or

a destination node for receiving the message.

7. The system of claim 1 wherein the message comprises:

data bits corresponding to data;

originating bits identifying the first node from which the message originates;

destination bits identifying the last node to which the message is destined;

transmitting bits identifying the current node transmitting the message; and

receiving bits identifying the next node intended to receive the message currently being transmitted.

8. The system of claim 1 wherein at least one of the nodes further comprises a GPS receiver interfacing with the controller to provide position and/or time information corresponding to the global position of the GPS receiver.

9. The system of claim 1 wherein the system is for use in combination with a wide area network (WAN) and wherein at least

one of the nodes further comprises a WAN interface connected to the controller to provide messages from the controller to the WAN and for providing messages from the WAN to the controller.

10. The system of claim 1 wherein each controller includes a memory storing control software for controlling the controller and wherein the control software is modified via a signal provided to the transceiver.

11. A system operating on a reference frequency comprising a plurality of nodes, each node comprising a transceiver and a corresponding controller for controlling the operation of the transceiver, wherein each controller operates its corresponding transceiver as one or more of the following types of nodes:

an originating type of node for providing a message in which the transceiver transmits on the reference frequency a message to another node of the system;

an intermediate type of node for handing off a message in which the transceiver receives on the reference frequency the message transmitted by another node and transmits on the reference frequency the received message to a subsequent node other than the node from which the message was received; and

a destination type of node for receiving the message in which the transceiver receives on the reference frequency the message transmitted by another node.

12. The system of claim 11 wherein in the originating type of node the controller controls the transceiver to receive on the reference frequency an implicit and/or explicit acknowledgment that the message has been received by another node, wherein in the intermediate type of node the controller controls the transceiver to transmit on the reference frequency an implicit

and/or explicit acknowledgment that the message has been received from another node, wherein in the intermediate type of node the controller controls the transceiver to receive on the reference frequency an implicit and/or explicit acknowledgment that the message has been received by another node, wherein in the destination type of node the controller controls the transceiver to transmit on the reference frequency an implicit and/or explicit acknowledgment that the message has been received from another node.

13. The system of claim 11 wherein at least one of the nodes is connected to a network server, wherein data transmitted by the nodes is stored by a database server in a database and wherein an application server permits one or more user systems to access the information stored in the database.

14. The system of claim 11 wherein at least a particular one of the nodes is programmed to expect a message from another of the nodes within a set period of time and wherein the particular node sends an exception message if the expected message is not received within the set period of time.

15. The system of claim 11 wherein there are a plurality of intermediate nodes, each programmed to store messages received from other nodes so that if a certain node of the plurality of intermediate nodes is disabled and unable to provide messages, others of the plurality can provide the last received messages from the certain node that is disabled.

16. The system of claim 11 wherein the message comprises data bits corresponding to data and wherein the trailing edge of each data bit provides a reference for detection of the data bits.

17. The system of claim 16 wherein the trailing edge provides a reference for transmitting and/or timing of incoming or outgoing messages.

18. The system of claim 16 wherein the message comprises bits having a Manchester coding scheme and wherein the trailing edges provide time synchronization with sub-bit time resolution.

19. The system of claim 16 wherein each node records an interval of time between each trailing edge as a time reference, wherein each node has a clock providing a clock signal which is compared to the time reference and wherein each node resets the clock when the compared clock signal does not correspond to the time reference.

20. The system of claim 11 wherein at least one of the nodes stores an audible announcement and wherein the node activates the announcement in response to receiving a particular predefined message.

21. The system of claim 11 wherein multiple packets of messages are transferred, each packet having a unique identification and wherein only unreceived packets are re-transmitted.

22. The system of claim 11 wherein nodes transmit messages after a time delay when other nodes are transmitting.

23. The system of claim 11 wherein each transceiver has adjustable power output up to one milliwatt thereby reducing interference between adjacent transceivers and thereby increasing the effective bandwidth of the system.

24. The system of claim 11 wherein each originating node originates a message pertaining to a particular application and stores and forwards messages pertaining to the particular application and other applications.

25. The system of claim 11 wherein each intermediate node stores and forwards messages pertaining to a plurality of applications.

26. A message having a protocol which permits the message to be successively transmitted by a wireless network of transceiver nodes employing node-to-node messaging wherein a message including data is sent from a first node originating via one or more intermediate nodes to a last node designated by the first node as the destination of the message, the message comprising:
data bits corresponding to the data;
originating bits identifying the first node from which the message originates;
destination bits identifying the last node to which the message is destined;
transmitting bits identifying the current node transmitting the message; and
receiving bits identifying the next node intended to receive the message currently being transmitted.

27. The message of claim 26 wherein each of the nodes transmits the message to another node which acknowledges receipt of the message and which retransmits the message to a subsequent node until the message reaches its destination.

28. The message of claim 27 wherein each node comprises one or more of the following:

an originating node for originating the message,

an intermediate node for handing off the message from a another node from which the message is received to a subsequent node other than the node from which the message was received, or

a destination node for receiving the message.

29. A system operating on a reference frequency comprising an originating node, a plurality of intermediate nodes and a destination node,

wherein the originating node provides data to the intermediate node, the originating node comprising:

a first transceiver transmitting on the reference frequency a message including the data and receiving on the reference frequency an implicit and/or explicit acknowledgment that the message has been received by one of the intermediate nodes; and

a first controller controlling operation of the first transceiver to transmit the message to the intermediate node and to receive the implicit and/or explicit acknowledgment that the message has been received by one of the intermediate nodes;

wherein each of the intermediate nodes hands off the message from one node of the system to another node of the system, each of the intermediate nodes comprising:

a second transceiver receiving the message transmitted on the reference frequency by the one node and transmitting on the reference frequency an implicit and/or explicit acknowledgment to the one node that the message has been received by the intermediate node, the second transceiver also transmitting on the reference frequency the received message and receiving on the reference frequency an implicit and/or explicit acknowledgment that the message has been received by the another node; and

a second controller controlling operation of the second transceiver to receive the message transmitted by the one node and to transmit an implicit and/or explicit acknowledgment that the message has been received by the intermediate node and to thereafter transmit the received message and receive the implicit and/or explicit acknowledgment that the message has been received by the another node; and

a destination node receiving the message from one of the intermediate nodes, the destination node comprising:

a third transceiver receiving on the reference frequency the message transmitted by the one intermediate node and transmitting on the reference frequency an implicit and/or explicit acknowledgment to the one intermediate node that the message has been received by the destination node; and

a third controller controlling the operation of the third transceiver to receive the message transmitted by the one intermediate node and to transmit an implicit and/or explicit acknowledgment that the message has been received by the destination node.